

Customer No.: 31561  
Docket No.: 12875-US-PA  
Application No.: 10/709,487

**REMARKS**

Applicants have carefully considered the Office Action dated July 06, 2007, and the amendments above together with the remarks that follow are presented in a bona fide effort to address all issues raised in the Action and thereby place this case in condition for allowance. Favorable reconsideration and allowance of the application and presently pending claims 1, 3-6, 8-11 and 13-15, as amended, are respectfully requested.

**Present Status of the Application**

The Office Action rejected claims 1, 6, 11 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (Korea 2001-009208) in view of Demaray et al. (US Pat. 5,330,628).

The Office Action rejected claims 2, 7, 12 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Grantham et al. (US PGPUB 2004/0086639 A1).

The Office Action rejected claims 3, 8, 13 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Harker et al. (US Pat. 3,690,635).

The Office Action rejected claims 4, 5, 9, 10, 14 and 15 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Krivokapic et al. (US Pat. 5,643,428).

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**Discussion of Office Action Rejections under 35 U.S.C. 103(a)**

*The Office Action rejected claims 1, 6, 11 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (Korea 2001-009208) in view of Demaray et al. (US Pat. 5,330,628). The Office Action rejected claims 2, 7, 12 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Grantham et al. (US PGPUB 2004/0086639 A1). The Office Action rejected claims 3, 8, 13 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Harker et al. (US Pat. 3,690,635). The Office Action rejected claims 4, 5, 9, 10, 14 and 15 under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Krivokapic et al. (US Pat. 5,643,428).*

Amended claim 1 of the present invention recites the features as follows:

“1. An adjustable collimator, comprising:

an adjustable main body, having an interior space, a top portion, a bottom portion and an adjuster between said top portion and said bottom portion, said adjuster being adapted for adjusting a relative distance between said top portion and said bottom portion;

a first collimating element, fixed inside said interior space of said top portion to move with said top portion;

a second collimating element, fixed inside said interior space of said bottom portion to move with said bottom portion; and

**a mask, covering the bottom portion and portion of the top portion of said**

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**adjustable main body below said first collimating element and surrounding said second collimating element."**

Amended claim 6 of the present invention recites the features as follows:

"6. A sputtering apparatus for sputtering a target material onto an object, comprising:  
a chamber, said target material, disposed inside said chamber;  
a holding base, disposed inside said chamber opposite to said target material; and  
an adjustable collimator, set between said holding base and said target material,  
said adjustable collimator including:  
an adjustable main body, having an interior space, a top portion, a bottom portion  
and an adjuster between said top portion and said bottom portion, said adjuster being  
adapted for adjusting a relative distance between said top portion and said bottom portion;  
a first collimating element, fixed inside said interior space of said top portion to  
move with said top portion;  
a second collimating element, fixed inside said interior space of said bottom  
portion to move with said bottom portion; and  
**a mask, covering the bottom portion and portion of the top portion of said  
adjustable main body below said first collimating element and surrounding said  
second collimating element."**

Amended claim 11 of the present invention recites the features as follows:

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"11. A sputtering apparatus for sputtering a target material onto an object, comprising:  
a chamber, said target material being disposed inside said chamber;  
a holding base, disposed inside said chamber opposite to said target material; and  
an adjustable collimator, disposed on said holding base to cover said object so that  
said adjustable collimator moves with said holding base, said adjustable collimator  
including  
an adjustable main body, having an interior space, a top portion, a bottom portion  
and an adjuster between said top portion and said bottom portion, said adjuster being  
adapted for adjusting a relative distance between said top portion and said bottom portion;  
a first collimating element, fixed inside said interior space of said top portion to  
move with said top portion;  
a second collimating element, fixed inside said interior space of said bottom  
portion to move with said bottom portion; and  
**a mask, covering the bottom portion and portion of the top portion of said  
adjustable main body below said first collimating element and surrounding said  
second collimating element."**

Jang et al. (Korea 2001-009208) or Demaray et al. (US Pat. 5,330,628) fails to disclose, teach or suggest that the mask in amended claims 1, 6, 11 of the present application. In particular, the mask covers the bottom portion and portion of the top portion of the adjustable main body below the first collimating element and surrounds the

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second collimating element in the present application, and thus it can prevent the molecules of the target material from directly going to the object and without being through the second collimating element.

Grantham et al. (US PGPUB 2004/0086639 A1) also fails to disclose, teach or suggest that the mask in amended claims 1, 6, 11 of the present application. It is quite obvious that the heated collimating mask assembly shown in Fig. 4B of Grantham is more complicated than that of the present application. By contrast, the present application at least has superiority in manufacture process and cost. In addition, the operation of the heated collimating mask assembly in Grantham is to move parallel to the top part with the help of a thin sidewall structure 35 and actuation mechanism 37, and thus it is different form that of the present application and difficult to combine with Jang et al. or Demaray et al.

Moreover, Harker et al. (US Pat. 3,690,635) or Krivokapic et al. (US Pat. 5,643,428) fails to disclose, teach or suggest that the mask in amended claims 1, 6, 11 of the present application.

In light of the foregoing, it is submitted that *Jang*, *Demaray*, *Grantham*, *Harker*, *Krivokapic*, or any of the cited references, taken alone or in combination, fails to disclose, teach, or suggest, either implicitly or explicitly the above features as claimed in claims 1, 6 and 11, rendering claims 1, 6 and 11 non-obvious and patentable.

Because independent claims 1, 6 and 11 are allowable over the prior art of record, their respective dependent claims 3-5, 8-10 and 13-15 are allowable as a matter of law,

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for at least the reason that these dependent claims contain all features of their respective independent claims 1, 6 and 11. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

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### CONCLUSION

For at least the foregoing reasons, it is believed that the claims 1, 3-6, 8-11 and 13-15 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

Oct. 5, 2007

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